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ABSTRACT

The Kindergarten Extended Day (KED) Program provided supplementary instruction for kindergarten pupils tested with the Cooperative Preschool Inventory (CPI) and identified as having educational deficiencies. Pupils in the Elementary Secondary Education Act Title I program attended school for a full day. Academic achievement of pupils relative to KED implementation factors was evaluated and results suggested: (1) students who attended the same session of KED for the entire school year showed higher achievement on the first grade selection instrument, i.e. the California Tests of Basic Skills (CTBS); (2) KED pupils outperformed their non-KED counterparts on the Basic School Skills Inventory (BSSI) and on both subtests of the CTBS; and (3) more than 50% of the pupils had been selected into the KED Program based upon an inappropriate norming table. The majority of the teachers were satisfied with having the CPI as the selection instrument for entry into the KED Program and with adoption of the BSSI as the program's evaluation instrument. (Author/RL)

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# *A COMPARATIVE REPORT OF THE ACHIEVEMENT OF THE KINDERGARTEN EXTENDED DAY PROGRAM*

*October, 1978*

*by*

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*and*
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KED


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## *EXECUTIVE SUMMARY*

*The Kindergarten Extended day (KED) Program provided supplementary instruction for kindergarten pupils identified as having educational deficiencies. Participating pupils attended school for a full day. Instruction was to be coordinated between the regular kindergarten and KED classes. The evaluation examined two aspects of the program, (1) the academic achievement of pupils and (2) teacher attitudes relative to KED implementation factors.*

*Information relative to academic achievement was collected in two ways. First, the achievement of participating pupils was examined to see if differences in achievement occurred for different class assignment groups, and variables which were believed to impact achievement were investigated to determine their contribution to achievement outcomes. The only factors found to impact achievement were pretest achievement and selection scores. It was found that when the effects of pretest and selection scores were controlled there were no differences in achievement on the Basic School Skills Inventory (BSSI). There were differences in achievement on the first grade selection instrument which favored those students who attended the same session of KED for the entire school year (i.e., either morning or afternoon).*

*Second, a group of eligible and identified students, who were not served by the KED program, were compared to a random sample of students with similar characteristics, who were served. It was found that when the effects of previous achievement and selection scores were controlled, pupils participating in the KED program outperformed their non-KED counterparts on the BSSI and on both subtests of the first grade selection instrument.*

*In addition to the achievement findings, it was also found that in excess of 50% of the pupils were selected into the program based upon an inappropriate norming table. This resulted in the overselection of younger pupils, to the exclusion of older students who met selection criteria.*

*In terms of teacher attitude, it was found that the majority of KED teachers were satisfied with recent testing changes which included use of a new selection instrument for the KED program and adoption of the BSSI for evaluation purposes. Teachers were less satisfied with their inservice training in the KED instructional support components.*

*The findings of this evaluation suggest that once a KED student is assigned to a morning or afternoon class session that he should remain in that class all year. However, to determine the consistency of this finding it was recommended that this aspect of the investigation be replicated using random assignment. It was further recommended that if the same selection instrument is used in subsequent years, the appropriate norm table be used when selecting pupils for the program. Finally, it was recommended that more attention be given to inservice in the instructional components.*

## INTRODUCTION

The Kindergarten Extended Day (KED) Program was piloted in the Spring of 1974 and was implemented as a Title I component in September of that year. By design, the program provides supplementary instruction for kindergarten pupils who evidence educational deficiencies. KED instruction is to be based upon each child's learning needs and is to compliment the instructional objectives of the regular kindergarten program.

During the 1977-78 school year, the Cooperative Preschool Inventory (CPI), published by Addison-Wesley Publishing Company, was used as the selection instrument. All kindergarten pupils in Title I schools with KED classes were individually tested with the CPI shortly after the start of school in the Fall. Those pupils who scored at or below the 50th percentile using norms for pupils aged 5 years 6 months to 6 years 5 months, and who had parental permission, qualified for KED participation. The maximum possible enrollment in any KED class was 15. In each KED school pupils with the lowest scores were to be selected first. To maximize KED enrollment, KED teachers were to maintain a reserve file of eligible and identified pupils so that pupils who transferred to another school could be replaced.

Participating pupils attended kindergarten for a full day instead of a half-day, spending one-half day in the regular kindergarten and the other half in a KED class. To insure coordination of instruction between the two classes the KED and regular kindergarten teachers were expected to routinely exchange diagnostic and instructional information.

Three basic instructional support systems were utilized by KED teachers to structure pupil learning activities. These systems were: (1) The Language

and Thinking (LAT) Program published by Follett Publishing Company, (2) The Behavioral Research Laboratories (BRL) Mathematics Program, and (3) The Developing Understanding of Self and Others (DUSO) published by American Guidance Services, Inc. Through the use of these support systems teachers were to provide appropriate individual or small group instruction. Priority was to be given to improving the child's verbal ability and to his successful completion of the 1-S program, which is the introductory reading program of St. Louis Public Schools, by the end of the school year.

During the 1977-78 school year 62 teachers provided instruction in 105 classes located in 55 schools. A total of 1,670 pupils was enrolled in the KED program.

PURPOSE OF THE EVALUATION

The evaluation focused on two aspects of the KED program: (1) the academic achievement of pupils, and (2) teacher input relative to KED implementation factors.

To accomplish this evaluation, two objectives were formulated.

1. To describe the overall impact of the KED program on the achievement of enrolled pupils. Specifically, answers were sought to the following questions:
   A. Did KED pupils show growth on programmatic objectives as measured by the Basic School Skills Inventory (BSSI)*.
   B. If growth occurred on programmatic objectives, as measured by the BSSI, was that growth in excess of what would have occurred without treatment?
   C. Did pupils in the four KED class assignment groups differ

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*Published by Follett Publishing Company, Chicago: 1975

initially in achievement? Assignment groups were classified as follows:

PM/PM - Pupils who attended PM classes all year.

PM/AM - Pupils who attended PM classes during the first semester and AM classes during the second semester.

AM/PM - Pupils who attended AM classes during the first semester and PM classes during the second semester.

AM/AM - Pupils who attended AM classes all year.

D. If differences existed in the four assignment groups, did these differences affect programmatic outcomes when initial achievement differences were statistically controlled?

E. What were the effects of the KED program on pupil achievement as determined by the Title I selection instrument (CTBS)

1. Were there differences among the four assignment groups?

2. Were there differences between KED and non-KED pupils?

F. Were KED students appropriately selected for participation?

G. Since, in the past, differences in achievement were observed according to KED class assignment factors - could such differences in pupil achievement be accounted for by other means, such as teacher and pupil variables?

II. To describe teacher attitude relative to KED program implementation factors. Specifically, to determine teacher attitudes toward:

A. Testing changes,

B. Adequacy of inservicing,

C. KED program objectives and their harmony with the regular kindergarten and Primary I programs.

*EVALUATION METHODS*

1. *Achievement of KED pupils was determined through the following methods:*

   (a) *The BSSI was administered on a pre-post-basis in October, 1977 and May, 1978 to all KED pupils, to determine gains in skills measured by this instrument. Such comparisons were made after controlling for CPI and BSSI pretest score differences through Analysis of Covariance procedures.*

   (b) *A comparison of BSSI achievement for KED vs. non-KED pupils was made through Analysis of Covariance using CPI scores as the covariate. To make this comparison, 234 regular kindergarten pupils who were identified for KED services but who were never enrolled in the program were tested with the BSSI during the same week in which KED pupils were post-tested. The scores attained by these pupils were then compared to 273 randomly selected KED pupils. To insure comparability of population pupils in both groups were selected by stratifying according to CPI score ranges obtained at the beginning of the school year.*

   (c) *A comparison of KED BSSI pupil achievement by KED class session attended during the year was made (i.e., PM/PM, PM/AM, AM/PM, or AM/AM). Chi square statistics were performed to determine if initial achievement levels, as determined by the CPI selection score, were different in the different KED class session assignments. Then, BSSI results were examined after controlling for observed differences.*

   (d) *Multiple linear regression techniques were used to examine teacher and pupil variables which were possible contributors to student achievement.*

   (e) *The Math and Visual & Auditory Discrimination subscales of the Comprehensive Tests of Basic Skills (CTBS), published*

by CTB/McGraw-Hill, which were used to select pupils for first grade Title I math and reading programs respectively, were examined for achievement differences. The evaluators acknowledge that last year's KED report stated:

> "...the results of the screening instrument [should] neither be used nor reported in such a way as to convey to principals or teachers that it is being used to make judgments about the KED program. ...such use of the results would redirect most teachers' efforts toward that instrument rather than towards the BSSI which has been identified as the best measure of the program's objectives."

The present analysis of the CTBS scores is not intended to determine the primary effectiveness of KED in meeting its stated objectives, but rather to assess if there was additional information which could be obtained relative to the program's effectiveness. Consequently, reporting the CTBS results should not redirect the primary focus of KED teachers or administrators to goals and objectives which are in disharmony with the present goals and objectives of the St. Louis Kindergarten and KED programs. Furthermore, since the primary goal of KED is to complement the regular kindergarten program and to promote pupil preparedness for first grade, it seemed appropriate to determine whether any impact was observable on the instrument which was used to select pupils for Title I programs in the first grade.

2. In April, all KED teachers were sent questionnaires to determine their reaction to test changes. Information was also collected regarding inservice training, and KED instructional practices.

*Presentation of Results*

*Evaluation objectives will be presented as underlined statements. Each of these objectives will be followed by a series of findings. Supporting data will be given directly beneath the findings. Recommendations based upon the findings of the evaluation will be presented in the section of the report entitled "Recommendations."*

## RESULTS

Evaluation Objective I: To describe the overall impact of the KED program on the achievement of enrolled pupils.

Finding 1: Use of a single norm table was inappropriate for the identification of the entire entering kindergarten population, and resulted in an overselection of younger students for the KED program.

Program administrators determined that students who scored at or below the 50th percentile on Table 7 of the CPI were identified for participation in the KED program. This table presents normative data for children between the ages of 5 years 6 months and 6 years 5 months.

However, accurate interpretation of CPI scores is dependent upon the age classification of pupils. Therefore, the publisher presents several norming tables, in approximately 6 month intervals. While a score of 43 represents the 50th percentile for children between the ages of 5 years 6 months and 6 years 5 months (Table 7), it represents the 66th percentile for students whose age fall within the range of Table 6 (5 years to 5 years 5 months).

Of the 1,017 students who had been enrolled in KED from September, 1977 to March 20, 1978, 473 (46.5%) were appropriate to the norming group of Table 7, the only one used for identification purposes. However, of these students, 544 (53.5%) were students whose ages were appropriate to the norming group of Table 6.

Two of the 473 pupils (0.4%) had scores above 43, were therefore not identified for services, but were enrolled. Of the 544 pupils in the KED program who were appropriate to Table 6, 39 (25.6%) had scores above the 50th percentile on the norming table appropriate to their age group. This means 141 (13.9%) of the

1,017 KED pupils had scores which were above the 50th percentile when appropriate norm tables were used.

A computer search of March 24, 1978, which identified proportions of pupils enrolled in KED by CPI score and age level ranges, also provided similar information on a population of Title I pupils who were eligible and identified for KED but were not enrolled. A total of 910 pupils were located and, of this number, 252 (27.7%) would have been identified using the appropriate norm tables for their age groups, and could have had Title I services through the KED program.

*Finding 3: Observed frequencies of pupils assigned to the four KED groups differed significantly from expected frequencies of pupils assigned based upon CPI selection scores.*

*To determine if the initial levels of student achievement were comparable in the four KED assignment groups, a contingency table was developed showing observed versus expected frequencies in these groups. This information is provided below in Table I. A Chi square statistic was computed to determine whether the observed number of assigned pupils in any group was significantly different from the number one would expect to be assigned.*

*TABLE I*

*CONTINGENCY TABLE OF OBSERVED AND EXPECTED VALUES FOR THE FOUR KED CLASS ASSIGNMENT GROUPS**

| CPI SCORE LEVELS | GROUP ASSIGNMENTS PM/PM | PM/AM | AM/PM | AM/AM | ROW TOTALS |
|---|---|---|---|---|---|
| ≤ 27 | 73 (86.7) | 98 (122.7) | 136 (108.8) | 67 (55.8) | 374 |
| 28 - 33 | 68 (87.6) | 111 (124.0) | 142 (110.0) | 57 (56.4) | 378 |
| 34 - 38 | 91 (85.8) | 126 (121.4) | 94 (107.7) | 59 (55.2) | 370 |
| ≥ 39 | 124 (96.0) | 169 (135.8) | 75 (120.5) | 46 (61.7) | 414 |
| COLUMN TOTALS | 356 | 504 | 447 | 229 | 1,536 |

* Expected values are shown in parenthesis

The resultant Chi square of 71.22 with 9 degrees of freedom was significant beyond the .001 alpha level. Further analysis of the table indicated that based upon CPI scores, both the PM/PM or PM/AM classes had substantially more pupils in the lowest quartiles than did either the AM/AM or the AM/PM groups. Table II shows the signed deviations for these groups from expected values.

TABLE II

SIGNED DIFFERENCE BETWEEN OBSERVED AND EXPECTED VALUES FOR THE FOUR KED CLASSIFICATION GROUPS

| CPI SCORE LEVELS | PM/PM | PM/AM | AM/PM | AM/AM |
|---|---|---|---|---|
| ≤ 27 | - 13.7 | - 24.7 | + 27.2 | + 11.2 |
| 28 - 33 | - 18.4 | - 13.0 | + 32.0 | + 0.6 |
| 34 - 38 | + 5.2 | + 4.6 | - 13.7 | + 3.8 |
| ≥ 39 | + 28.0 | + 33.2 | - 45.5 | - 14.3 |

*Finding 4: There was no significant difference in Total BSSI achievement for KED pupils among the four class assignment groups (i.e., PM/PM, PM/AM, AM/PM, AM/AM).*

*Pupil achievement was examined by KED class assignment classifications to determine if these groups achieved differentially to a significant degree. In the data analysis BSSI pretest and CPI selection scores were used as covariates to control for differences on these two factors.*

*Results of this analysis, reported in Table III, show both the unadjusted mean scores of pupils in the four groups, and the mean scores adjusted for the covariates. Inspection shows that while there were nearly 5 points difference on the unadjusted scores between Groups 1 and 3 (which could possibly be viewed as a meaningful difference in group achievement), such differences tended to disappear when the groups were adjusted on the covariate measure. The largest adjusted difference was found between Groups 2 and 3, about 1½ points, but the analysis of covariance produced an F of 1.91, which was not significant.*

*TABLE III*

*ADJUSTED AND UNADJUSTED BSSI SCORES BY GROUP ASSIGNMENT FACTORS**

| Group | Unadjusted Mean Scores | Mean Scores Adjusted for Covariate |
|---|---|---|
| PM/PM | 71.11 | 68.57 |
| PM/AM | 70.26 | 69.60 |
| AM/PM | 66.35 | 68.06 |
| AM/AM | 66.99 | 68.81 |

*(Mean score for Total Group = 68.80)*

**The table which shows the analysis of covariance can be found in Appendix A, Table VIII.*

*Finding 5: When pupil class assignment factors were used as the independent variable, only previous achievement and selection scores were found to account for differences in pupil achievement as measured by the BSSI.*

*Previous KED reports have indicated differential pupil growth according to pupil class assignment factors*. For this reason assignment variables were used in the analysis of the data this year to determine if one class assignment was more effective in promoting pupil achievement than another.*

*In addition to class assignment, a number of other variables associated with teachers and pupils, which were felt to possibly impact achievement, were investigated. The following teacher variables were included in a multiple regression analysis:*

*(1) Level of teacher training,*

*(2) Total number of years teacher has taught,*

*(3) Number of years teacher has taught in KED program,*

*(4) Whether teacher is both a regular kindergarten teacher and a KED teacher, or a KED only teacher, and*

*(5) Age of teacher.*

*Pupil variables which were considered were:*

*(1) Pupil sex,*

*(2) Pupil age,*

*(3) Selection score (CPI), and*

*(4) Previous achievement (BSSI Total Prescore).*

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**Assignment factors are determined by class session pupils attended during the first and second semesters - the four possible groups are:*

*(1) PM/PM - PM classes both semesters*
*(2) PM/AM - PM classes first semester and AM classes second semester*
*(3) AM/PM - AM classes first semester and PM classes second semester*
*(4) AM/AM - AM classes both semesters*

A summary of teacher and pupil variables including means and standard deviation are given in Appendix A, Table VII.

Of these variables only previous achievement and selection scores were found to have a significant association with pupil achievement. The age of the student had a slight but not significant association. Therefore, all further analyses of the four class assignment groups was done through analysis of covariance procedures using previous achievement and selection scores as covariates*.

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*Variables are designated covariates in an analysis when researchers are interested in determining the effects of treatment over and above the effects of these variables. Such a designation permits the researchers to look at the variables of interest, in this instance pupil achievement, after equalizing the effects of the covariates on the different groups.

*Finding 6: Pupils enrolled in the KED program achieved significantly higher BSSI scores at the end of the year than did a control group of kindergarten pupils who were not served by KED.*

*The determination of the effects of KED, on an annual basis, has been obscured in the past because of the lack of a control group of non-treated eligible and identified kindergarten pupils. An earlier finding indicated that pupils enrolled in KED demonstrated achievement gains on the BSSI, from pre to post, however, it was not known whether gains represented increases over what would be expected of pupils who did not participate in the KED program. Therefore, this year an attempt was made, after initial program assignments, to identify a comparable group of pupils so that the effects of KED could be determined.*

*All kindergarten pupils enrolled in Title I schools offering the KED program received the CPI test in September to select KED participants. In April, 1978, a computer search was done to determine if there were eligible kindergarten pupils, not in KED, who had CPI scores which were comparable to scores of pupils in KED. This search revealed: (a) 1,017 KED pupils for whom complete data were available and, who were still in KED at the time of the search and, (b) 910 pupils who had never participated in KED. From this population, pupils were stratified according to CPI levels, and the distribution of pupils in these categories were noted for each population. Sufficient pupils were available in these levels to permit the construction of treatment and control groups. It was determined that a sample size of 500 would be sufficient to study the impact of KED.*

*The 500 were partitioned in proportion to the overall distribution of pupils in KED and not in KED. Therefore, 52.8% of the sample was to come from pupils in*

KED and the remaining 47.2% were to come from non-participants. Furthermore, an effort was made to balance on CPI achievement, the samples relative to the populations from which they were drawn. The total sample consisted of 507 pupils; 273 (53.8%) selected from KED and 234 (46.2%) from non-KED populations. Characteristics of the samples are shown in Appendix A, Table XI. These pupils were selected from 27 of the 55 KED schools*.

In May, five testers received training in BSSI test administration. This training was comparable to the training KED teachers received in September. The same person who inserviced KED teachers also inserviced the five testers. In addition, steps were taken to obtain complete and accurate data on non-KED pupils in two areas which these testers could not accurately ascertain - Self Help and Classroom Behavior. Regular kindergarten classroom teachers were requested to complete these two subscales for the pupils in the study. In all cases, regular classroom teachers complied with the request. Post-testing of KED and non-KED pupils was conducted during the same time period.

An analysis of covariance was performed using CPI selection scores as the covariate. The use of a covariate statistically equalized the scores of pupils in both groups to enable comparisons independent of entry points. The resultant F of 188.3 with 1 and 504 degrees of freedom was statistically significant at an alpha level of .001, which means that there was only one chance in a thousand that such differences in scores would have been observed by chance.

Pupil achievement comparisons on each subscale of the BSSI are presented in Figure 2.

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*Due to student attrition, n ne additional schools were used to complete the sample in one of the non-KED levels.

*Finding 7: KED classes achieved differentially according to class assignment factors on the two CTBS subtests Math and Visual and Auditory Discrimination.*

*Since differences in achievement were not found for pupils in the four classification groups on the evaluation instrument (BSSI), pupil achievement on the CTBS Math and Visual and Auditory Discrimination Subscales were used to see if the same achievement pattern was maintained on those subscales. An analysis of covariance was performed on CTBS Math and Visual and Auditory Discrimination scores using CPI selection scores and BSSI pretest scores as covariates.*

*This analysis yielded an F of 8.74 on the Math scores which was significant at an alpha of .001 and an F of 2.66 on the Visual and Auditory Discrimination scores which was significant at an alpha of .05. Both unadjusted and adjusted mean scores were calculated for pupils in the four groups. Math subscale results are reported in Table IV, and Visual and Auditory Distrimination subscale results are reported in Table V.*

*TABLE IV*

*ADJUSTED AND UNADJUSTED CTBS SCORES BY GROUP ASSIGNMENT FACTORS ON CTBS MATH SCORES**

| Group | Unadjusted Mean Scores | Mean Scores Adjusted for Covariate |
|---|---|---|
| PM/PM | 16.89 | 16.30 |
| PM/AM | 15.25 | 15.04 |
| AM/PM | 15.00 | 15.47 |
| AM/AM | 16.07 | 16.46 |

*(Mean score for Total Group = 15.67)*

**The summary table which shows the analysis of covariance can be found in Appendix A, Table IX.*

TABLE V

ADJUSTED AND UNADJUSTED CTBS SCORES BY GROUP ASSIGNMENT FACTORS ON CTBS THE TOTAL VISUAL & AUDITORY DISCRIMINATION SCORES*

| Group | Unadjusted Mean Scores | Mean Scores Adjusted for Covariate |
|---|---|---|
| PM/PM | 33.89 | 32.59 |
| PM/AM | 31.54 | 31.01 |
| AM/PM | 29.81 | 30.92 |
| AM/AM | 30.99 | 31.86 |

(Mean score for Total Group = 31.47)

*The summary table which shows the analysis of covariance can be found in Appendix A, Table X.

It can be seen from examination of Tables IV and V that the groups which attended KED during the same time period throughout the year (i.e., PM/PM, AM/AM), achieved higher mean adjusted scores than those groups which attended mixed KED classes (i.e., AM/PM or PM/AM).

*Finding 8: Pupils enrolled in the KED program achieved significantly higher CTBS scores on the two subtests used for first grade Title I screening than did a comparison group of non-KED pupils.*

*Since KED pupils demonstrated such significant gains on the BSSI over their non-KED counterparts, the two subtests of the CTBS used for first grade Title I program identification were also examined to see if the KED program worked to reduce the number of pupils identified for future remediation over a comparable group of pupils who did not receive such services.*

*Analyses of covariance were performed using CTBS scores on the two measures as the criterion variable and CPI scores as the covariate. Table VI shows the results of this analysis on the two criterion measures both before and after adjustment for the covariate. It can be seen that there was relatively little difference between the groups in achievement on the unadjusted scores. However, when these scores were adjusted (i.e., when the groups were equalized on selection scores through covariance procedures) then there was a marked difference between the two groups.*

*The significance level reported in Table VI shows that when the groups were equalized on selection criteria, KED pupils scored significantly higher on both subscales of the CTBS test (11% on Visual & Auditory Discrimination and 8% on Math) than did their non-KED counterparts who did not receive services.*

TABLE VI

CTBS ACHIEVEMENT SCORES FOR KED AND NON-KED PUPILS
ADJUSTED AND UNADJUSTED FOR COVARIATES

| | Total (492) | KED (264) | NON-KED (228) | Difference KED - NON-KED |
|---|---|---|---|---|
| **Unadjusted Scores** | | | | |
| Achievement Measure: | | | | |
| CTBS | | | | |
| RIT | 31.86 | 32.04 | 31.65 | .39 |
| MIT | 16.22 | 16.15 | 16.31 | -.16 |
| **Adjusted Scores** | | | | |
| Covariate - CPI | | | | |
| Before Adjustment | 40.4 | 36.5 | 45.0 | -8.2 |
| After Adjustment | 40.4 | 40.4 | 40.4 | 0.0 |
| Achievement Measure: | | | | |
| CTBS | | | | |
| RIT | 31.86 | 34.24 | 29.11 | 5.13* |
| MIT | 16.22 | 17.14 | 15.16 | 1.98* |

* $p < .001$

The complete analyses of covariance from which the data shown in this table have been extracted are found in Appendix A, Tables XII & XIII.

Table XII presents analysis of covariance information on Math.

Table XIII presents analysis of covariance information on Reading.

*Evaluation Objective II:* *To gather teacher input relative to KED program implementation factors.*

*Finding 1: The majority of KED teachers reported they were satisfied with testing changes.*

*During the 1977-78 school year both the KED screening and evaluation instruments were changed. In past years the California Tests of Basic Skills (CTBS) were administered in the fall and served two purposes: 1) KED screening and 2) to obtain prescore information. The CTBS was then readministered in the spring to identify pupils for further remediation in first grade and also to provide post-test data. This year the CPI was administered in the beginning weeks of the school year, on an individual basis, to identify pupils for KED participation. The BSSI was then individually administered to all pupils enrolled in the KED program to determine pupil ability prior to program treatment. The CTBS was administered in April to identify pupils for continued remediation in first grade, and in May the BSSI was given as a post-achievement measure.*

*Since these changes not only increased the required number of testings but also demanded individual testing, administrators were interested in teacher reactions to these changes. Therefore, questionnaires were sent to all KED teachers. Ninety-five percent (59 of 62) of the teachers who received these questionnaires completed and returned them.*

*In response to the question "How satisfied are you with current testing procedures which utilize the CPI and BSSI?", eighty-six percent of the responding KED teachers indicated they were very satisfied or satisfied with the CPI and eighty-one percent reported they were very satisfied or satisfied with the BSSI. Some dissatisfaction with the BSSI apparently arose from a misunderstanding*

regarding the number of times the BSSI was to be administered. Seventeen percent of the responding teachers indicated that the test had to be administered too often, adding that, in their opinion, pre and post-testings were sufficient. Since only pre and post-testings were required, it appears that some teachers misunderstood color coded marking instructions and tested on a quarterly basis.

In spite of any such concerns, the BSSI was assessed as a very good or good measure of what is taught in the KED program by 90% of the responding teachers.

In terms of CPI effectiveness for its stated purpose it was found that 85% of the responding KED teachers felt the CPI was a very good or good identifier of Title I kindergarten pupils for KED participation. Teacher comments regarding this test revealed 19% of the responding teachers felt the CPI was too long or that the cut-off score should be raised to identify more pupils. Eight percent commented that this test was superior to the CTBS; moreover, they liked the individual approach.

*Finding 2: Both the CPI and the BSSI were rated by KED teachers as very good or good identifiers of the learning deficits of KED pupils.*

*Program guidelines stipulate KED instruction is to be based upon each child's learning needs. Obviously, if instruction is to be based upon needs, such needs must be identified. Past evaluations indicated KED teachers were not administering common diagnostic tests routinely, although some informal diagnosis did occur.*

*This year, teachers administered both the CPI and the BSSI on an individual basis. It was believed that such testings would provide teachers with individual pupil information early in the school year so that remediation could occur in response to demonstrated need.*

*To determine the effectiveness of these instruments for this purpose, KED teachers were asked to rate CPI and the BSSI performance as identifiers of pupil learning deficits. The CPI was rated as very good or good by 71% of the responding KED teachers and the BSSI received very good or good ratings by 88% of these teachers.*

*Finding 3: The majority of KED teachers reported that they had received inservice training in instructional support systems and in the CPI and BSSI tests; however, some teachers indicated that the training was inadequate.*

*Because successful implementation of the KED program depends upon teacher understanding of instructional support systems and KED testing instruments, teachers were asked to indicate if they had received training in these areas and to rate the training which they received in each of these areas. Teacher responses to these items are presented below.*

*HAVE YOU RECEIVED INSERVICE TRAINING IN THE FOLLOWING KED INSTRUCTIONAL SUPPORT SYSTEMS AND TESTS?*

| | Yes | No | No Response |
|---|---|---|---|
| LAT | 86.4% | 11.9% | 1.7% |
| BRL | 83.1 | 13.6 | 3.4 |
| DUSO | 79.7 | 16.9 | 3.4 |
| CPI | 86.4 | 13.6 | |
| BSSI | 88.1 | 11.9 | |

*HOW DO YOU RATE THE TRAINING WHICH YOU RECEIVED FOR EACH OF THESE AREAS?*

| | Very Adequate | Adequate | Inadequate | Very Inadequate | Not Applicable | No Response |
|---|---|---|---|---|---|---|
| LAT | 25.4% | 50.8% | 11.9% | 3.4% | 8.5% | 1.7% |
| BRL | 23.7 | 52.5 | 11.9 | | 10.2 | 1.7 |
| DUSO | 22.0 | 49.2 | 10.2 | 5.1 | 11.9 | 1.7 |
| CPI | 32.2 | 52.5 | 1.7 | | 11.9 | 1.7 |
| BSSI | 32.2 | 54.2 | 1.7 | | 10.2 | 1.7 |

*Although the majority of teachers reported they had received training in these areas, 15% of the reporting teachers rated such training as inadequate or very inadequate in both LAT and DUSO and 12% indicated BRL training was inadequate. Moreover, the number of teachers reporting such training as very adequate was at less than desired levels. Generally too, it appears teachers were more*

*comfortable with the training they received in the testing areas than they were with training received in the instructional support areas.*

*Finding 4: KED teachers report that the KED program is meeting guidelines in coordinating regular kindergarten and KED instruction, in remediating individual pupils evidenced learning needs and in preparing pupils for Primary I.*

*KED guidelines stipulate that KED instruction is to complement the instructional objectives of the regular kindergarten program and is to be based upon each child's learning needs to prepare the child for the primary grades. To determine the extent to which KED teachers felt these goals were being met by the KED program, teachers were asked to respond to questions in these areas.*

*The majority of KED teachers (86%) reported KED and regular kindergarten instruction was highly coordinated or coordinated. Moreover, the KED program was seen by 91% of the responding KED teachers as a very effective or effective program in remediating pupil's learning deficits. Individualized instruction was reportedly provided KED pupils as follows:*

| Percent of Teachers | Percent of Individualization |
|---|---|
| 20% | 85 - 100% of the time |
| 31% | 70 - 84% " " " |
| 22% | 50 - 69% " " " |
| 20% | 25 - 49% " " " |
| 7% | Less than 25% of the time |

*Of the responding KED teachers, 86% reported they were very familiar or familiar with Primary I instructional goals. Furthermore, 91% of the responding teachers reported that the KED program very adequately or adequately prepared pupils for Primary I.*

## SUMMARY FINDINGS AND CONCLUSIONS

Based on the findings of this report it was concluded that:

1. The KED program was effective in meeting its instructional objectives as measured by the BSSI.

2. Achievement did not differ on the BSSI when pupils switched class sessions at mid-year. However, switching classes may have impaired pupil performance as measured by the first grade selection instrument.

3. Pupils who participated in KED achieved higher scores on both the BSSI achievement instrument and the CTBS selection instrument than did pupils of equal ability who did not participate in KED.

4. The only variables accounting for differences in pupil achievement, as determined by the BSSI, were previous achievement and selection score. Therefore, at this time, all identified teacher and pupil variables need not be considered in determining who is served, when they are served or by whom they are served when assigning pupils to the KED program.

5. KED teachers are generally satisfied with testing changes which were initiated this year.

6. Use of only one norming table for selection of pupils results in the overselection of younger pupils for the KED program.

7. KED teachers expressed a qualified need for more inservice training in the KED instructional components.

## RECOMMENDATIONS

1. The findings of this study suggest that once a student is assigned to a class session, morning or afternoon, he should remain in that class assignment throughout the school year. To determine the consistency of this finding, it is recommended that this aspect of the investigation be replicated in the future using random assignment procedures.

2. Additional time should be allocated to teacher training in the KED instructional components. Although teachers generally reported they had received training in these areas the proportion of teachers indicating such training was very adequate was lower than would ideally be expected.

3. More than one norming table of the CPI should be used to identify pupils for Title I services. When only one table was used it resulted in the overselection of pupils from one age group and the underselection of pupils from another age group. Thus, some pupils were excluded from service who were in more need of service than some others who were served.

*APPENDIX A*

*TABLES*

*TABLE VII*

*MEANS AND STANDARD DEVIATIONS OF TEACHER AND PUPIL VARIABLES*

| Teacher | | | Pupil | | |
|---|---|---|---|---|---|
| Variable | $\bar{x}$ | S.D. | Variable | $\bar{x}$ | S.D. |
| 33 | .2648 | .4556 | 10 | .5502 | .4977 |
| 34 | 11.9418 | 7.7712 | 21 | 32.5800 | 7.9000 |
| 35 | 2.7488 | 1.2157 | 39 | 73.0271 | 3.8556 |
| 36 | .8246 | .3805 | 40 | 33.3628 | 13.7928 |
| 43 | 456.7329 | 111.5391 | | | |

*Variable Labels*

*Teacher Variables*

33. *Level of teacher training (0 = BA; 1 = MA; 2 = MA + 30; 3 = Ph.D.)*

34. *Total number of years teacher has taught (in years)*

35. *Number of years teacher has taught in KED program (in years)*

36. *Teacher assignment (0 = Regular and KED; 1 = KED only)*

43. *Teacher age (in months - May, 1978)*

*Pupil Variables*

10. *Pupil Sex (0 = girls; 1 = boys)*

21. *Selection Score (CPI)*

39. *Pupil Age (in months - May, 1978)*

40. *BSSI Total Prescore*

*TABLE VIII*

*SUMMARY OF ANALYSIS OF COVARIANCE*

*(Post BSSI scores by Group Assignment with CPI selection scores and Pre BSSI scores as covariates)*

| *Source of Variation* | *SS* | *df* | *MS* | *F* |
|---|---|---|---|---|
| *Covariates* | *76562.06* | *2* | *38281.03* | *452.57** |
| *Selection Score (CPI)* | *7937.31* | *1* | *7937.31* | *93.84** |
| *BSSI Pre Score* | *33639.20* | *1* | *33639.20* | *397.69** |
| *Main Effects* | *483.82* | *3* | *161.27* | *1.91* |
| *Group Assignment* | *483.82* | *3* | *161.27* | *1.91* |
| *Error* | *108355.19* | *1281* | *84.57* | |
| *Total* | *190243.31* | *1286* | *147.93* | |

* $p < .001$

*TABLE IX*

*SUMMARY OF ANALYSIS OF COVARIANCE*

*(CTBS Mathematics Score by Group Assignment with Selection Scores (CPI) and Pre BSSI scores as covariates)*

| Source of Variation | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | 4335.75 | 2 | 2167.87 | 135.79* |
| Selection Score (CPI) | 1091.37 | 1 | 1091.37 | 68.36* |
| BSSI Pre Score | 1149.67 | 1 | 1149.67 | 72.01* |
| Main Effects | 418.57 | 3 | 139.52 | 8.74* |
| Group Assignment | 418.57 | 3 | 139.52 | 8.74* |
| Error | 20275.92 | 1270 | 15.96 | |
| Total | 25309.70 | 1275 | 19.85 | |

* Significant at .001 alpha level

*TABLE X*

*SUMMARY OF ANALYSIS OF COVARIANCE*

*(CTBS Total Auditory & Visual Subscale by Group Assignment with Selection Score (CPI) and BSSI Prescore as covariate)*

| *Source of Variation* | *SS* | *df* | *MS* | *F* |
|---|---|---|---|---|
| *Covariates* | *22394.48* | *2* | *11197.24* | *154.097** |
| *Selection Score (CPI)* | *7247.65* | *1* | *7247.65* | *99.743** |
| *BSSI Prescore* | *4437.88* | *1* | *4437.88* | *61.074** |
| *Main Effects* | *580.65* | *3* | *193.55* | *2.664* |
| *Group Assignment* | *580.65* | *3* | *193.55* | *2.664* |
| *Error* | *92282.75* | *1270* | *72.66* | |
| *Total* | *117419.06* | *1275* | *92.09* | |

* *Significant at .05 alpha level*

*TABLE XI*

*DISTRIBUTION OF PUPILS IN KED AND NON-KED GROUPS BY CPI SCORE LEVELS*

| CPI Level | KED | NON-KED |
|---|---|---|
| Low Scores | 140 | 31 |
| Medium Scores | 91 | 72 |
| High Scores | 42 | 131 |
| Total | 273 | 234 |

*TABLE XII*

*SUMMARY OF ANALYSIS OF COVARIANCE*

*(CTBS Mathematics Score by Group Membership (KED or Non-KED) with Selection Score (CPI) as a covariate)*

| *Source of Variation* | *SS* | *df* | *MS* | *F* |
|---|---|---|---|---|
| *Covariate (CPI)* | | | | |
| *Selection Score (CPI)* | *4532.223* | *1* | *4532.223* | *53.025** |
| *Main Effects* | | | | |
| *Group Membership* | *2003.910* | *1* | *2003.910* | *23.445** |
| *Error* | *41796.734* | *489* | *85.471* | |
| *Total* | *46347.863* | *491* | *94.395* | |

** Significant at .001 alpha level*

*TABLE XIII*

*SUMMARY OF ANALYSIS OF COVARIANCE*

*(CTBS Auditory and Visual Score by Group Membership (KED or Non-KED) with Selection Score (CPI) as a covariate)*

| *Source of Variation* | *SS* | *df* | *MS* | *F* |
|---|---|---|---|---|
| *Covariate* | | | | |
| *Selection Score (CPI)* | *922.277* | *1* | *922.277* | *50.839** |
| *Main Effects* | | | | |
| *Group Membership* | *297.723* | *1* | *297.723* | *16.412** |
| *Error* | *8870.969* | *489* | *18.141* | |
| *Total* | *9796.352* | *491* | *19.952* | |

* *Significant at .001 alpha level*

APPENDIX B

NR = No Response

KED TEACHER QUESTIONNAIRE

Name CITY-WIDE School 59

Total number of years teaching:

| | | | | | |
|---|---|---|---|---|---|
| 0 | 1 | 11 | 4-6 | 1 | ½ |
| 4 | 2-3 | 41 | over 6 | 2 | NR |

Number of years teaching KED:

| | | | | | |
|---|---|---|---|---|---|
| 17 | 1 | 15 | 3 | 1 | 4½ |
| 5 | 2 | 20 | 4 | 1 | ½ |

I. Please check (✓) the one response which most accurately reflects your response concerning KED testing procedures. NR

A. In your opinion, how does the CPI perform as an identifier of Title I kindergarten pupils for KED participation?

16 Very Good 34 Good 6 Poor 1 Very Poor 1 Fair 1

Comments: _____

B. How good is the BSSI as a measure what is taught in the KED program?

11 Very Good 42 Good 3 Poor 0 Very Poor 1 Average 2

Comments: _____

C. How does the BSSI perform as an identifier of pupils' learning deficits?

18 Very Good 34 Good 5 Poor 0 Very Poor 1 Average 1

Comments: _____

D. How does the CPI perform as an identifier of pupils' learning deficits?

8 Very Good 34 Good 12 Poor 1 Very Poor 1 Fair 2
1 Average

Comments: _____

E. How satisfied are you with current testing procedures which utilize the CPI and BSSI?

| CPI | | BSSI | |
|---|---|---|---|
| 17 | Very Satisfied | 12 | Very Satisfied |
| 34 | Satisfied | 36 | Satisfied |
| 6 | Dissatisfied | 9 | Dissatisfied |
| 1 | Very Dissatisfied | 1 | Very Dissatisfied |
| 1 | No Response | 1 | No Response |

Comments: _____

II. Please respond to the following items as they relate to inservice training.

A. Have you received inservice training in the following KED instructional support systems and tests?

| | Yes | No | No Response |
|---|---|---|---|
| LAT | 51 | 7 | 1 |
| BRL | 49 | 8 | 2 |
| DUSO | 47 | 10 | 2 |
| CPI | 51 | 8 | 0 |
| BSSI | 52 | 7 | 0 |

Comments: _____

B. How do you rate the training which you received for each of these areas? (Check N/A if not applicable.)

| | Very Adequate | Adequate | Inadequate | Very Inadequate | N/A | NR |
|---|---|---|---|---|---|---|
| LAT | 15 | 30 | 7 | 2 | 5 | |
| BRL | 14 | 31 | 7 | - | 6 | 1 |
| DUSO | 13 | 29 | 6 | 3 | 7 | 1 |
| CPI | 19 | 31 | 1 | - | 7 | 1 |
| BSSI | 19 | 32 | 1 | - | 6 | 1 |

III. Please respond to the following items indicating your involvement relative to the Inservice Center this school year.

A. How many inservice sessions have you attended, at the Inservice Center, this school year?

16 0 19 1 18 2 1 3 3 More than 3 2 No Response

B. List any aspects of the inservice session(s) you attended which you were able to utilize or incorporate into your instructional activities.

_____

_____

_____

C. How many times, this year, have you used the Media Center in your district?

15 0 11 1 5 2 9 3 18 More than 3 1 No Response

Specify services which were provided. _____

_____

_____

IV. Please respond to the following items relative to KED instruction. Check (✓) the one response which most accurately reflects your opinion.

A. How coordinated is the KED program with regular kindergarten instruction?

| | |
|---|---|
| 13 | Highly Coordinated |
| 38 | Coordinated |
| 4 | Uncoordinated |
| - | Very Uncoordinated |
| 4 | No Response |

Comments: _____

B. How familiar are you with Primary I instructional goals?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 17 | Very Familiar | 34 | Familiar | 5 | Unfamiliar | 1 | Very Unfamiliar |
| | | | | | | 2 | Not Recorded |

Comments: _____

C. Given the amount of knowledge you have concerning Primary I instruction, how adequate is KED instruction in terms of preparing pupils for Primary I classes?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 22 | Very Adequate | 32 | Adequate | 3 | Inadequate | - | Very Inadequate |
| | | | | | | 2 | No Response |

Comments: _____

D. As now implemented, how effective is the KED program in remediating pupils' learning deficits?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 18 | Very Effective | 36 | Effective | 2 | Ineffective | - | Very Ineffective |
| | | | | 1 | Not Recorded | 2 | No Response |

Comments: _____

E. To what extent have you provided individualized instruction for the pupils in your KED class(es)?

| | |
|---|---|
| 12 | 85% - 100% of the time |
| 18 | 70% - 84% " " " |
| 13 | 50% - 69% " " " |
| 12 | 25% - 49% " " " |
| 4 | less than 25% of the time |

Comments: _____

_____

_____

F. *Rank each of the following aspects of KED for helpfulness in preparing pupils for the primary grades? (Rate 1 for Most Helpful to 5 for Least Helpful.)*

___ *Development of Language Skills*
___ *Development of Math Skills*
___ *Responsibility for Self*
___ *Social Development*
___ *Remediation of Learning Deficits*

*Comments:* _____

_____

_____

G. *In order to make KED a more effective program, what aspects of the program do you feel should be changed/added/eliminated?*

*Change:* _____

_____

_____

*Add:* _____

_____

_____

*Eliminate:* _____

_____

_____